

Remote Sensing for Grassland Mapping and Monitoring

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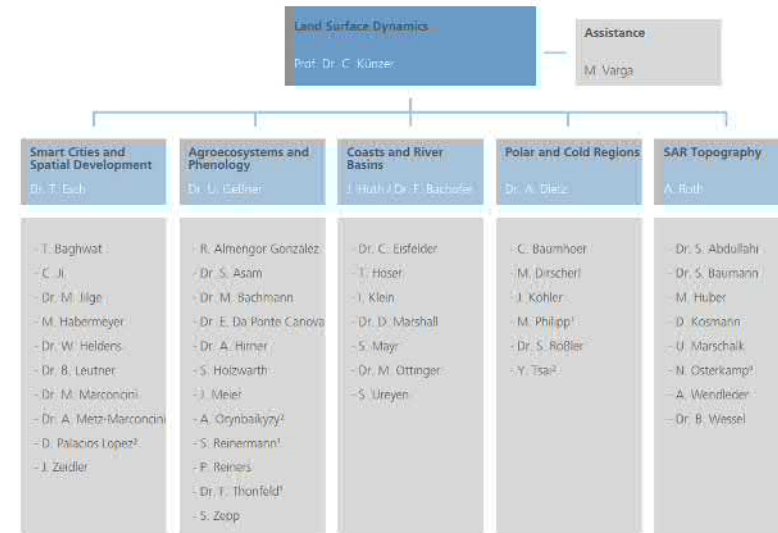


Knowledge for Tomorrow

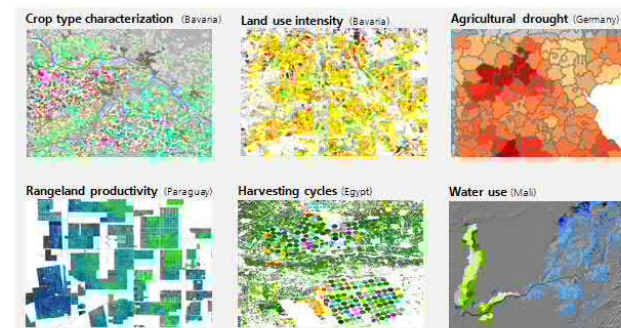


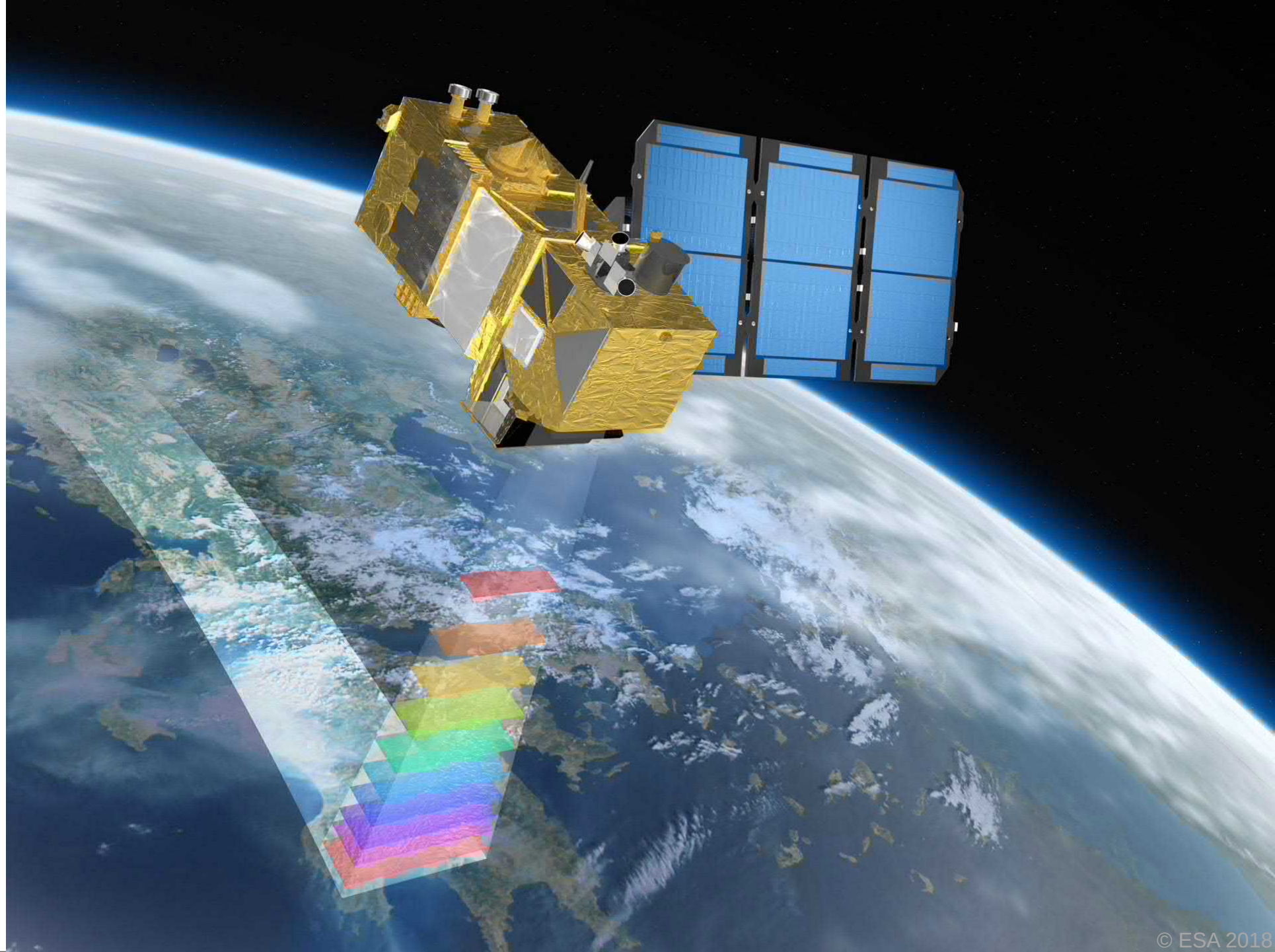
Earth Observation Center

Department of Land Surface Dynamics

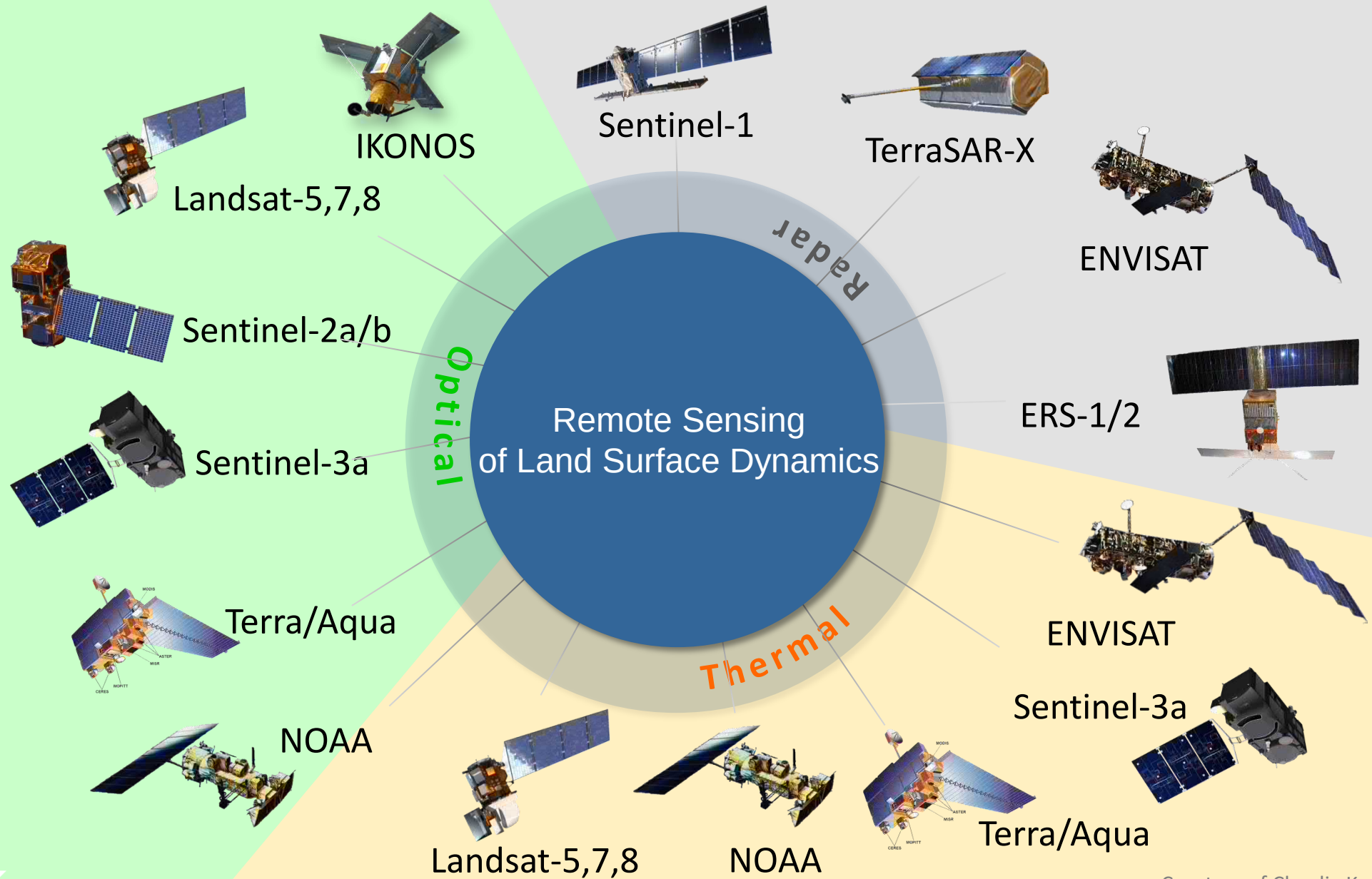


Team: Agroecosystems and Phenology

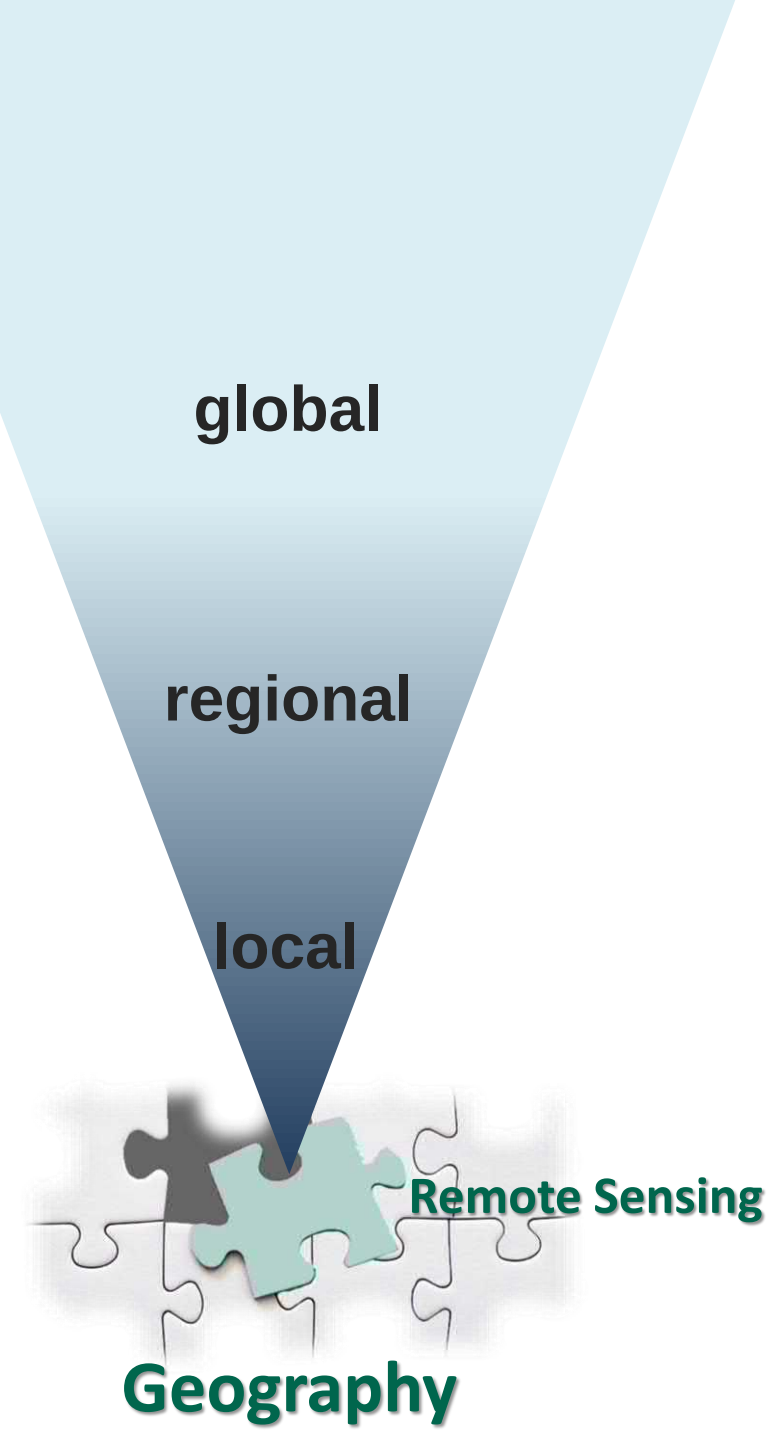
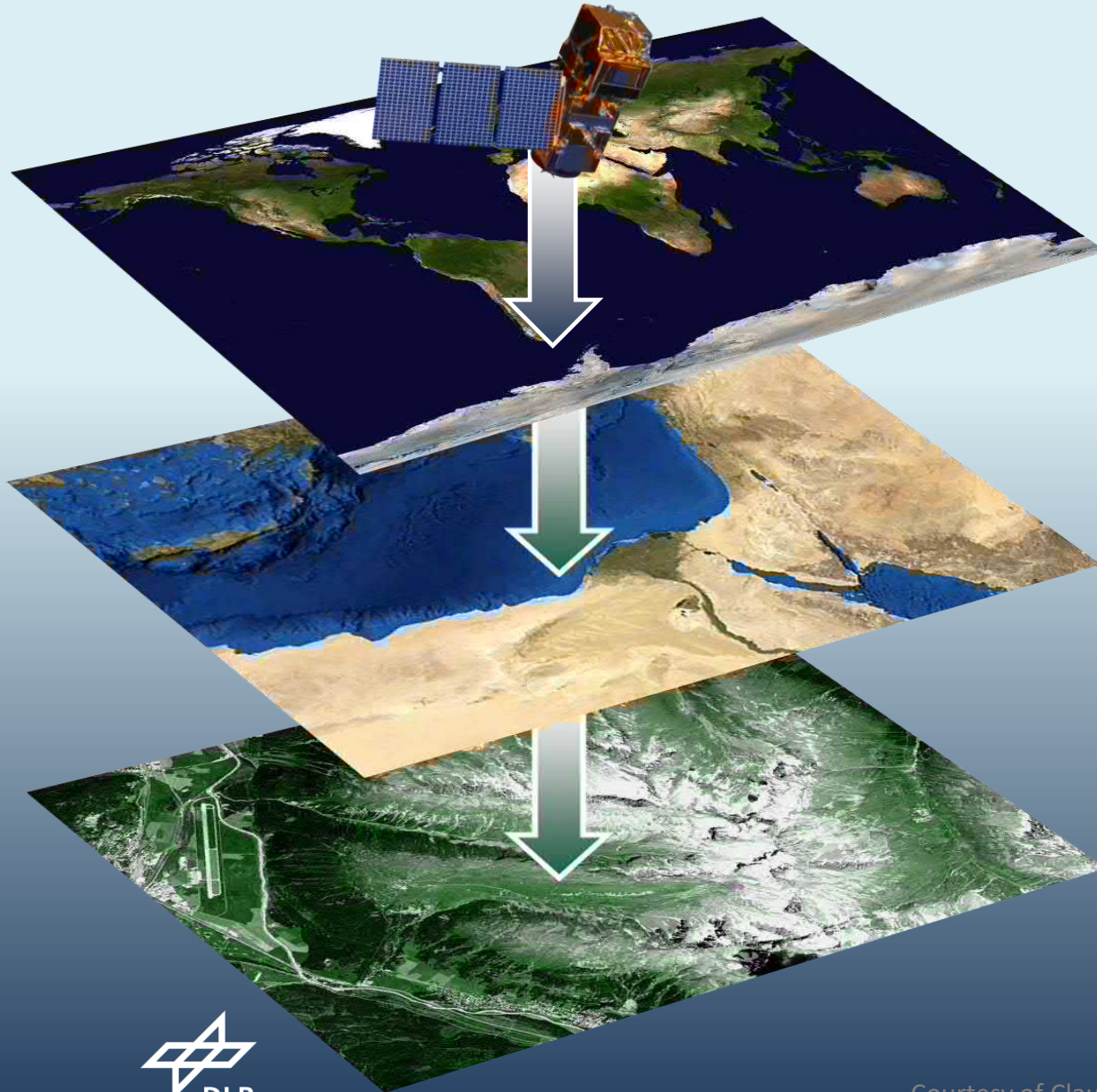




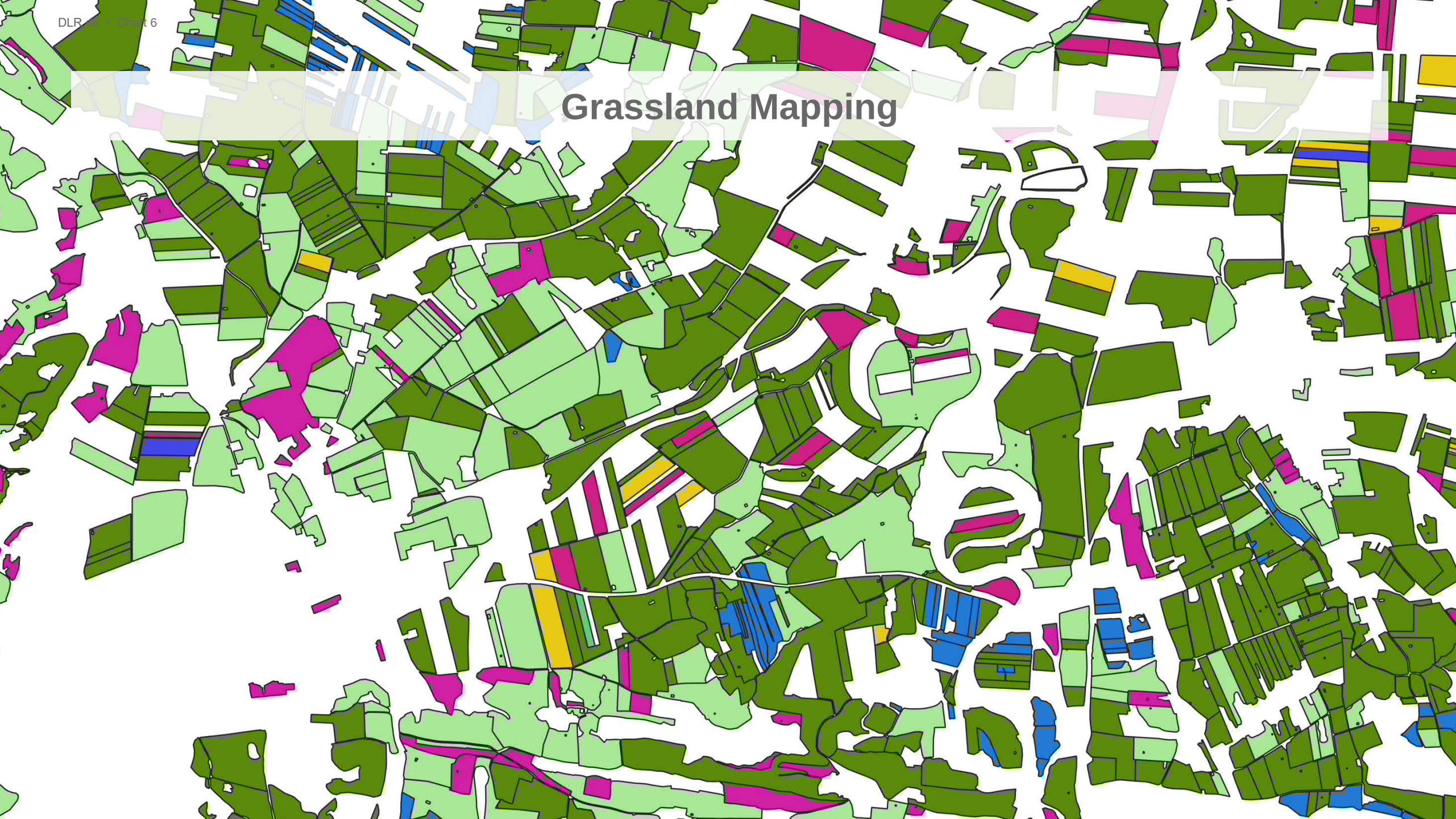
Potential of the Earth Observation Sensor Fleet



... at different Scales

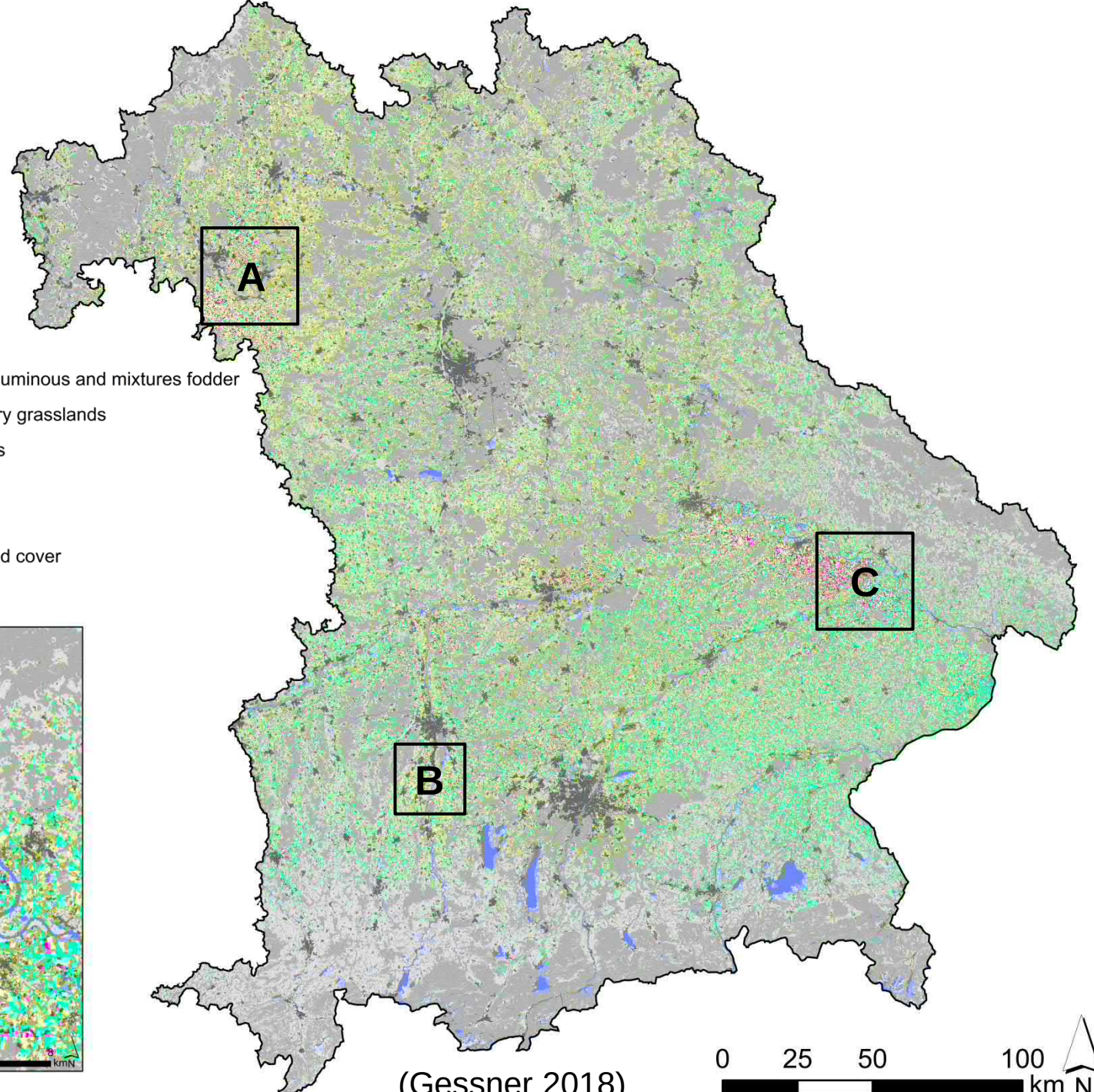
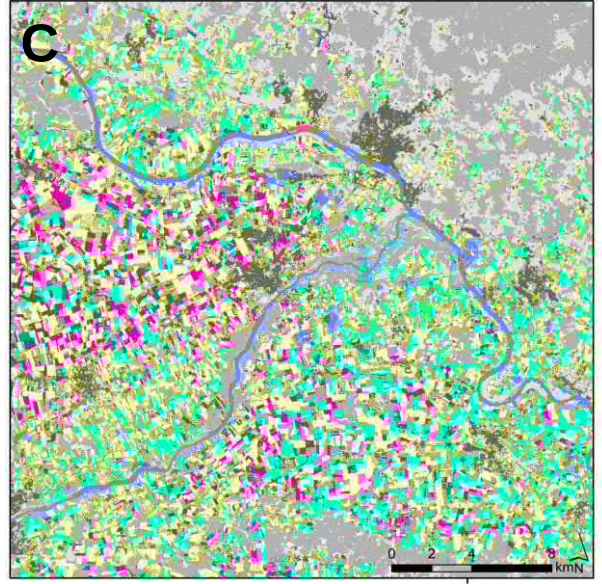
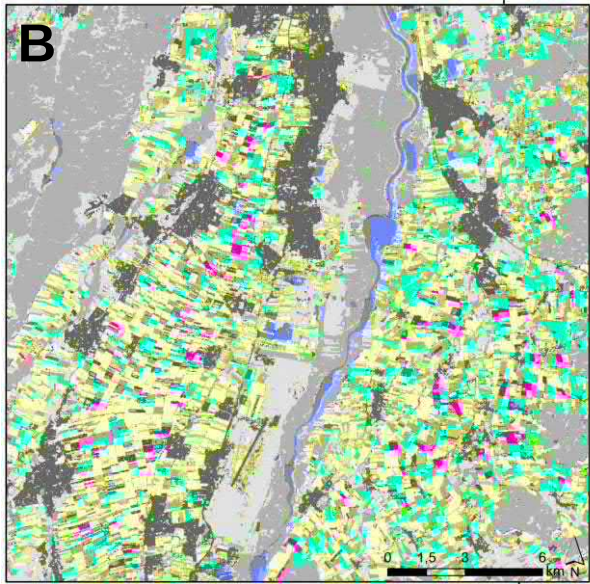
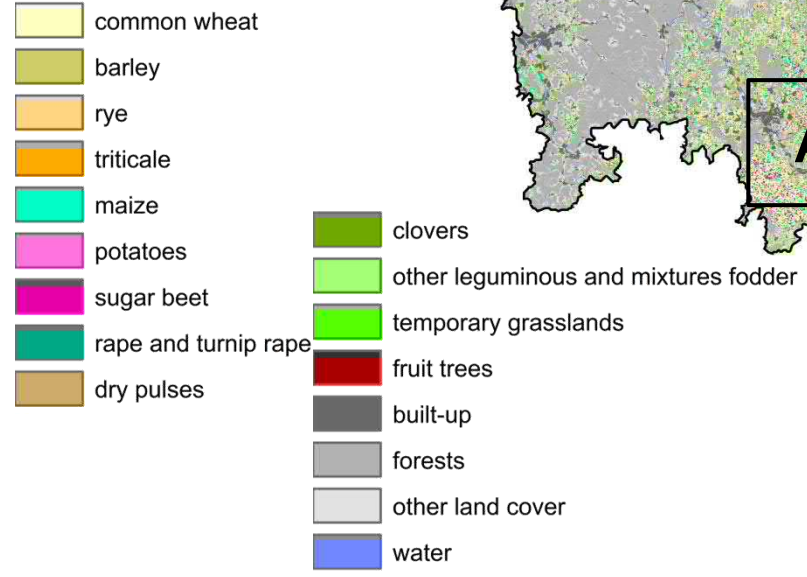
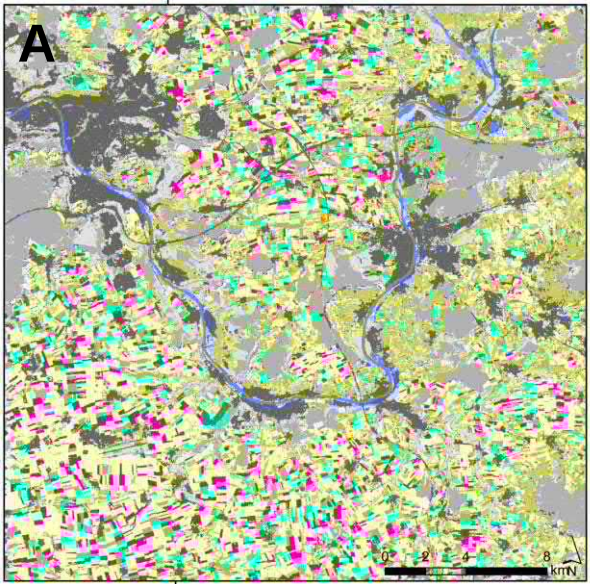


Grassland Mapping



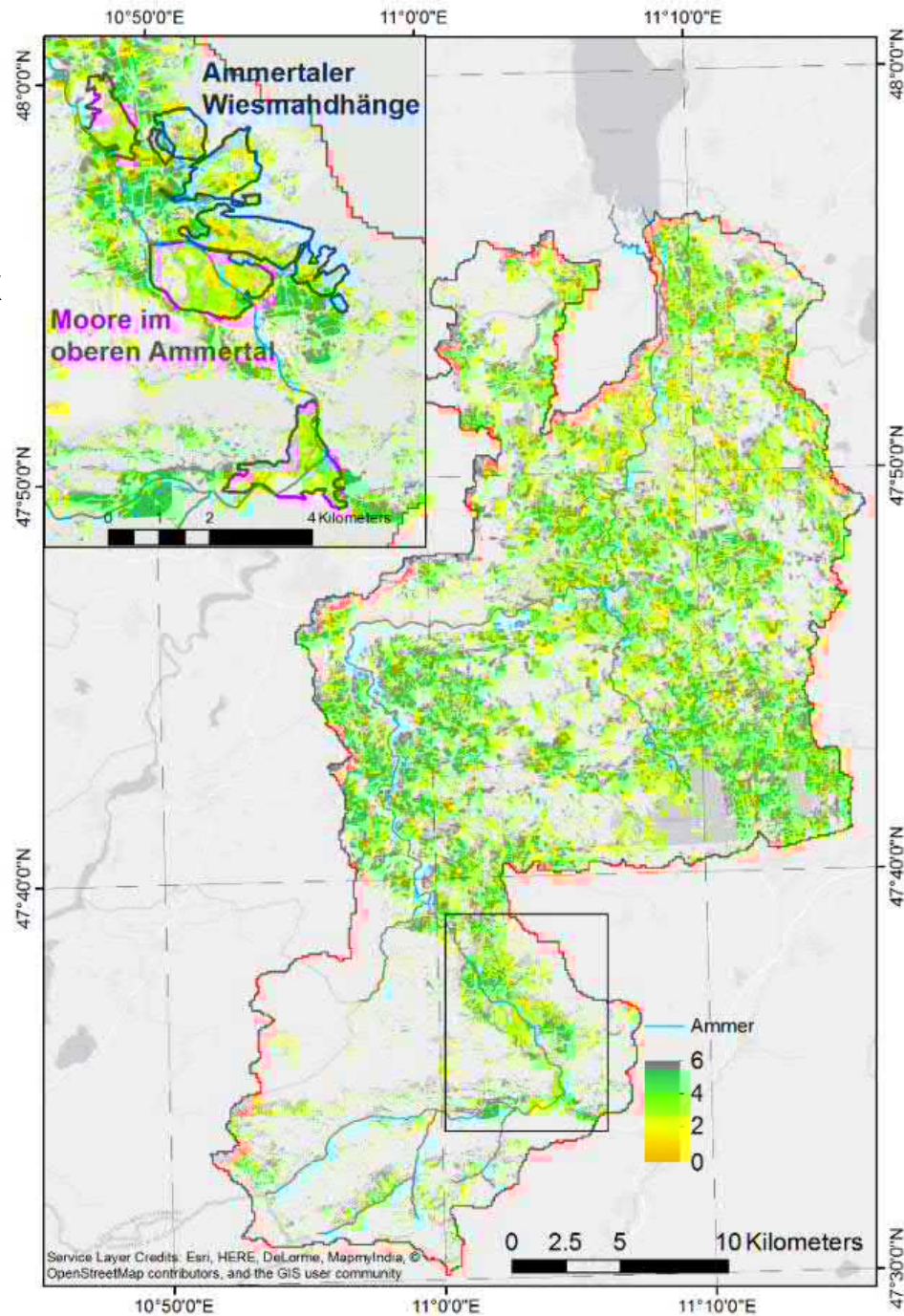
Crop Type Classification Bavaria

2015

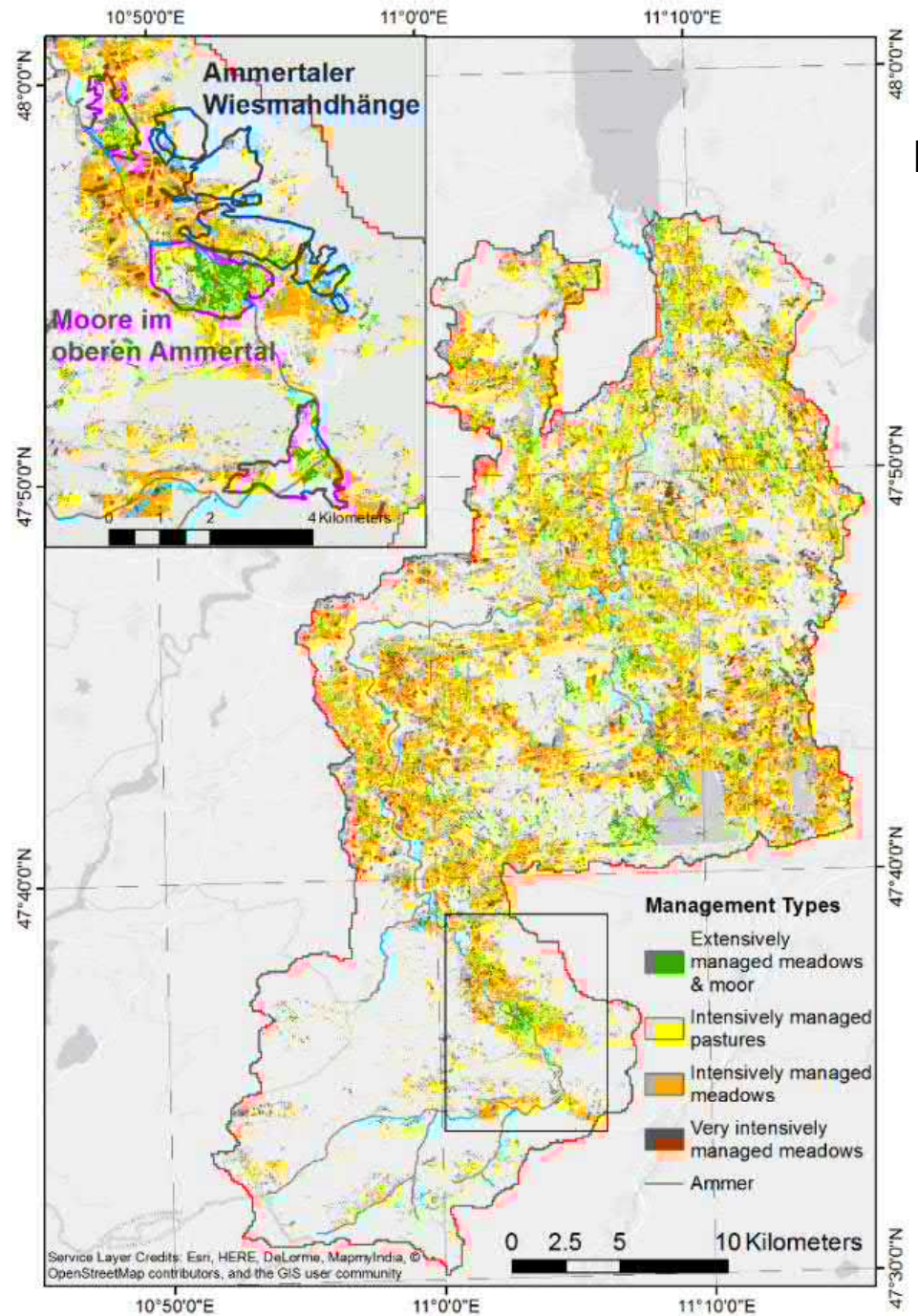


(Gessner 2018)

Leaf
Area
Index



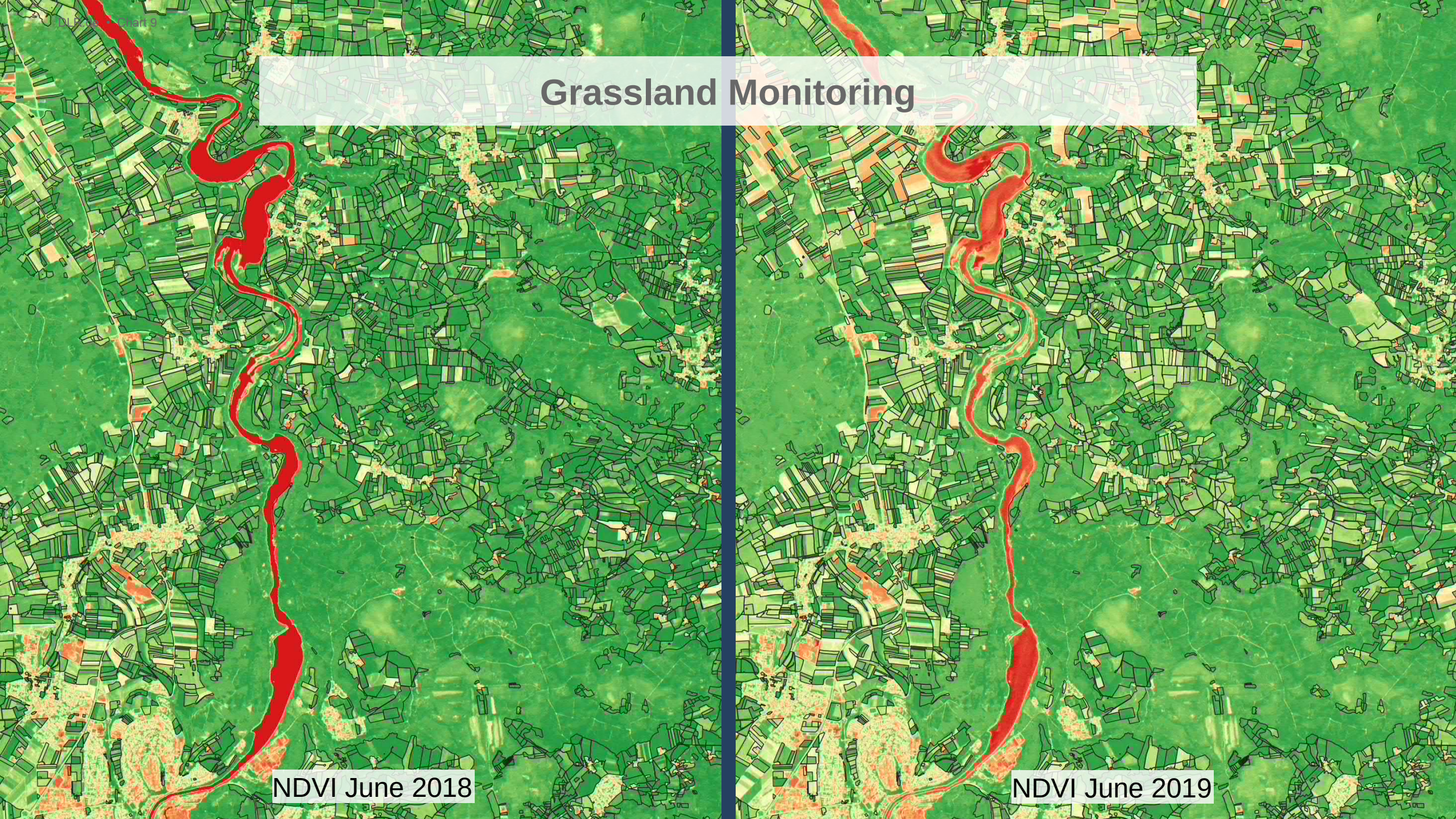
Management
& Use
Intensity



Grassland Monitoring

NDVI June 2018

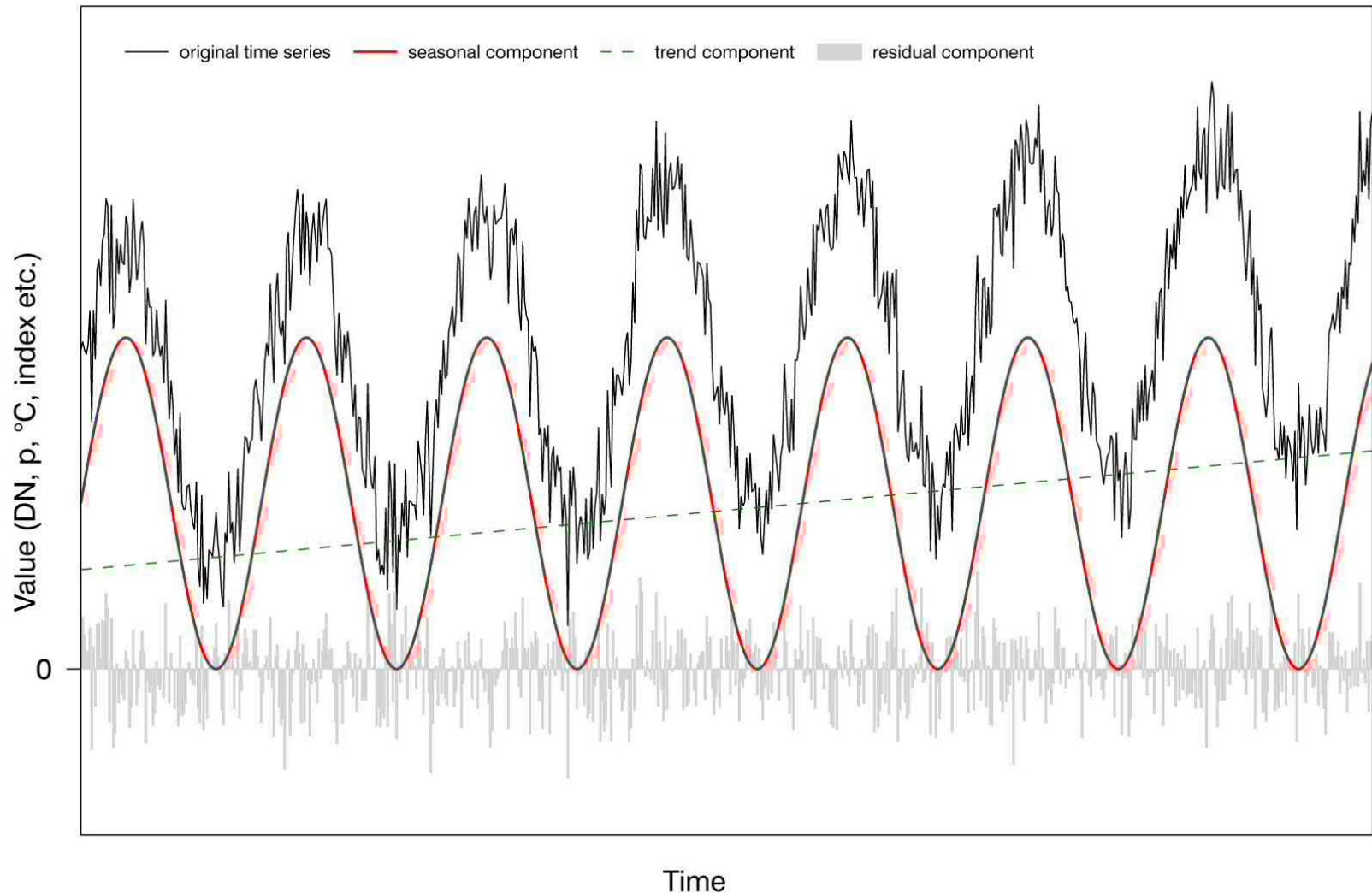
NDVI June 2019



Time Series: Definition and Components

Series of discrete data point

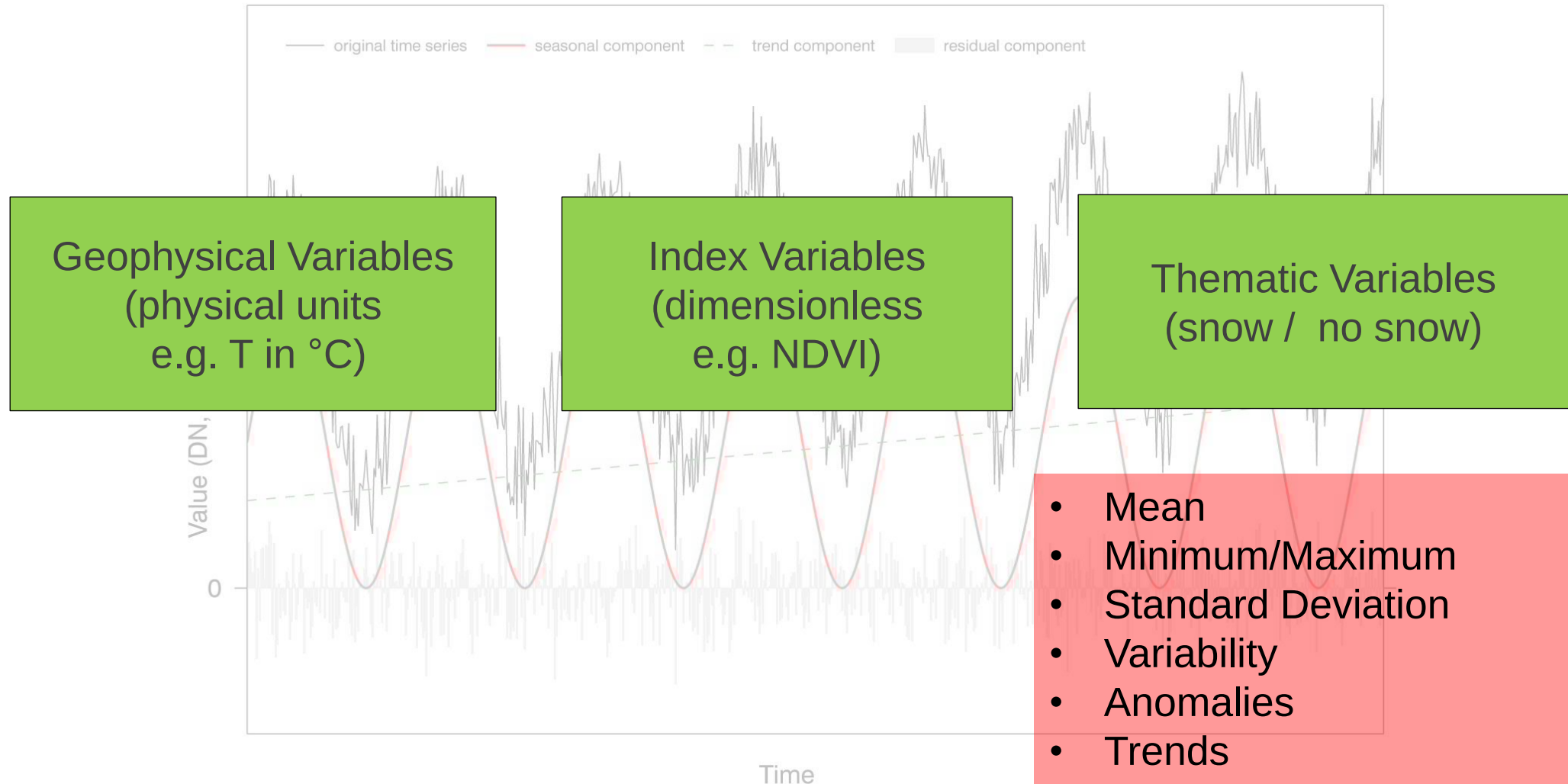
Components: Trend, Seasonal Component, Noise Component



Time Series: Definition and Components

Series of discrete data point

Components: Trend, Seasonal Component, Noise Component



Satellite Data Time Series



Kuenzer, C., Dech, S., Wagner, W., 2015: Remote Sensing Time Series Revealing Land Surface Dynamics: Status Quo and the Pathway Ahead. In: Kuenzer, C., Dech, S., Wagner, W. (eds.), 2015: Remote Sensing Time Series Analyses revealing Land Surface Dynamics. pp 2-25. ISBN 978-3-319-15967-6, Springer, The Netherlands

Difference 90th-10th Perc. NDVI

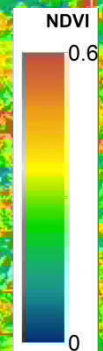
Urban

Agriculture fields

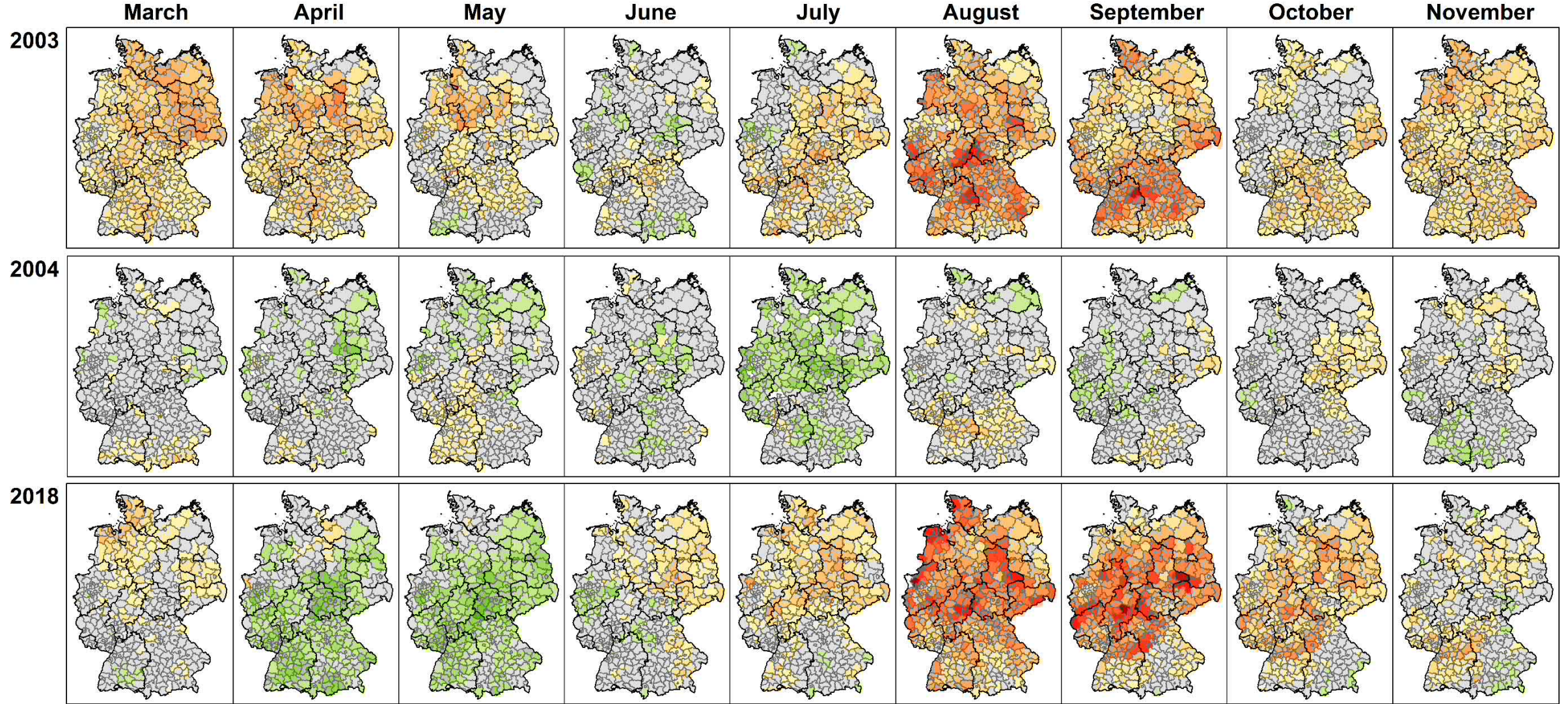
Grassland

Broadleaf Forest

Coniferous Forest



The Effect of Droughts on Grassland - Germany



Deviation of monthly MODIS EVI from 18-year longterm median



0 250 500 Km

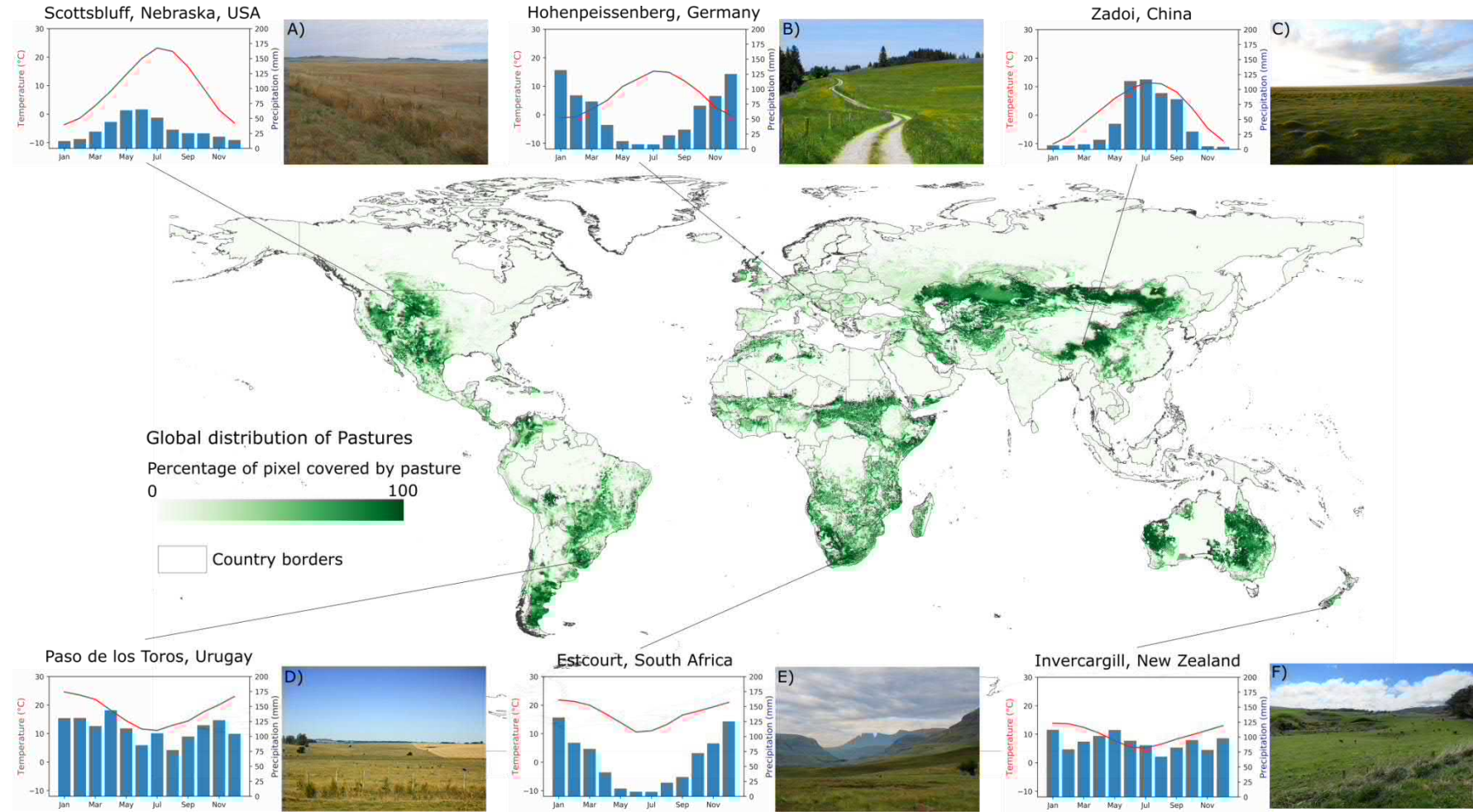


Coordinate System: WGS84
Projection: Lambert Azimuthal Equal Area

(Reinermann et al. 2019)

Challenges - Opportunities

- Heterogeneity within grasslands
- Management and use intensity



(Reinermann et al. 2020; Based on data from Ramankutty et al. 2010, NOAA and Flickr)

Thank you!

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<https://www.susalps.de>

